



January 29, 1998

COPY

Cal/EPADepartment of
Toxic Substances
Control1011 N. Grandview Ave.
Glendale, CA 91201Carol A. Yuge
Deputy Director
Lockheed Martin Corporation
Environment, Safety & Health
Burbank Program Office
2550 N. Hollywood Way, 3rd Floor
Burbank, CA 91505-1055Pete Wilson
GovernorPeter M. Rooney
Secretary
for Environmental
Protection

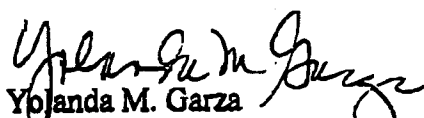
Dear Ms Yuge:

**WORK PLAN FOR INVESTIGATION OF OFF-SITE
CONTAMINATION: LOCKHEED MARTIN CORPORATION,
TORRANCE, CALIFORNIA (EPA ID. NO. CAD030398622)**

The Department of Toxic Substances Control (DTSC) reviewed the work plan submitted by Lockheed Martin Corporation (LMC) for an approval. The work plan was prepared for investigating the offsite groundwater contamination originated from LMC. The work plan is entitled "Phase I Groundwater Characterization Work Plan, Boeing Realty Corporation C-6, Parcel A, Los Angeles, California."

Attached is a copy of the DTSC's comments on the work plan. Please revise the work plan according to the comments and submit to DTSC for an approval by March 16, 1998. Should you have any question regarding this letter, please contact Ms. Chia-Rin Yen at (818) 551-2182.

Sincerely,


Yolanda M. Garza
Unit Chief
Southern California Permitting Branch

enclosure

B. P. O.	
DATE REC'D.	2/2/98
WBS #	12
COPIES TO:	Jensen, Johnson, Yuge, Reg Log

Carol A. Yuge
January 29, 1998
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cc: Mr. Jim Ross
Regional Water Quality Control Board
101 Centre Plaza Dr.
Monterey Park, California 91754-2156

Mr. Hadar Plafkin
Department of Planning
City of Los Angeles
220 N. Figueroa Street
Los Angeles, California 90012

Mr. Jeff Dhont
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, California 94105

John R. Johnsen
Lockheed Martin Corporation
Environment, Safety & Health
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M E M O R A N D U M


Cal/EPADepartment of
Toxic Substances
Control1011 N. Grandview Ave.
Glendale, CA 91201

TO: Chia-Rin Yen
Permitting Branch

FROM: Alfredo Zanoria, R.G. *[Signature]*
Geological Services Unit

DATE: January 13, 1998

SUBJECT: Phase I Groundwater Characterization
Workplan, Boeing Realty Corporation

Pete Wilson
GovernorPeter M. Rooney
Secretary
for Environmental
Protection

The Geological Services Unit (GSU) has reviewed the document Phase I Groundwater Characterization Workplan, Boeing Realty Corporation C-6, Parcel A Los Angeles California, dated October 1997 (the Workplan). The workplan was prepared by Integrated Environmental Services Inc. per agreement between Lockheed Martin Inc. and Boeing Realty Corp. to investigate the offsite extent of groundwater contamination originating from the Lockheed Martin property (Formerly International Light Metals Facility) into the Boeing facility. The report was prepared in cooperation with Geraghty & Miller, Inc., consultant to Lockheed Martin.

The following are GSU's comments:

1. This reviewer is unfamiliar with past and present conditions within the Boeing facility that might have a bearing on the current investigations, specifically the potential for commingling of plumes from the two facilities. The Workplan should provide a brief discussion about the results of groundwater investigation within the Boeing property, including the chemicals of concern and the extent of contamination. Please provide a map of the contaminant plumes. *LM safe as well*
2. The Workplan should revise its strategy for placement of new monitoring wells. The concept of arranging wells according to "vector directions" is not standard practice in groundwater investigations, and does not offer any apparent advantage to the conventional methods. Instead of using groundwater flowpath as the main consideration, the proposal restricts well placement along "vector" lines that are defined by the orientation of the fence, with subsidiary lines projecting at 45°. As a result, some areas are covered by wells spaced too close together

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(e.g., DAC-P1, BP-04, BP-07 and BP-01; BP-11 and BP-05), while leaving large gaps in other areas (e.g., between BP-10 and BP-04; BP-05 and BP-02). The conventional method is still preferable, which relies on "eyeballing" to achieve optimum coverage of the downgradient area, using the minimum of wells but strategically placed to yield the maximum data value. The wells may be arranged in a pattern of concentric half-rings, or an orthogonal grid, or some combination of both.

3. Page 3-4: "Prior to the installation of permanent monitoring wells, temporary test wells will used (sic) to delineate the horizontal extent of...plumes."

Page 3-6, 2nd par.: "The monitoring wells will be constructed using threaded, 2-inch-diameter (temporary wells) or 4-inch-diameter (permanent wells),...(PVC) casing."

The Workplan is unclear about the nature of these temporary wells and the determination process involved in converting temporary wells to permanent. Does the temporary well consist simply of the assembled well casing lowered into an open borehole and then sampled? Or would a filter pack be built around the screen interval of the "temporary well"? If the objective is to achieve quick characterization with minimum compromise on water quality, a better alternative is to use a hydropunch sampler driven ahead of the borehole. With this method, several depth-discrete samples can be collected from the saturated zone, which can then be used for determining screen placement of depth-discrete wells.

Unless this area of the Boeing facility is already well defined stratigraphically, continuous coring should be conducted in selected wells. However, all wells should be continuously cored as the saturated zone is reached.

} already
done
reference BPL
2 BB report

The Workplan should also specify whether an on-site laboratory will be used, or a fixed laboratory with quick turnaround time to allow timely decision-making.

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4. Page 3-6, 2nd par.: "Each...well will be constructed with two slotted intervals. One...is to be from ten feet above...to 15 feet into the saturated zone. The other...is from 20 to 40 feet below the saturated zone."

This well design is not acceptable. If the purpose is acquire characterization of the plume from different levels of the formation, such data is compromised by the mixing of groundwater within the well casing. A separate well should be targeted for each depth interval. Several well casings may be installed within the same borehole (nested well system) as long as complete hydraulic separation between each screen interval is ensured. A preferred alternative is to have separate boreholes for each depth-discrete well (clustered well system).

} agree

5. The proposed method of well development only describes using a bailer and centrifugal pump. The experience of this GSU staff is that a combination of pumping and surging would be required to properly develop the well, given the type of soils at this site. Unless this proposal is based on actual experience at the Boeing facility, please revise this proposal appropriately. Also, take note that DTSC standards require that wells be developed until turbidity stabilizes at around 5 NTUs or less (not 50 NTUs as proposed).

} Target only
can do

6. The Sampling and Analysis Plan does not include a provision for sampling and analysis of soils from well boreholes. These borings provide an opportunity to collect soil data that can be used to eliminate the possibility of other sources for groundwater contamination. Soil samples should be collected where there are obvious indications of contamination (staining, odors, PID detections) and from pre-established intervals. Samples should be analyzed for all constituents of concern present in both ILM and Boeing facilities.

} soil not
needed
already
done
2BB

7. For the initial set of groundwater samples, the GSU recommends that each well be analyzed for all the known groundwater constituents present in both ILM and Boeing facilities. This is to establish a

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broad information baseline that can be used to assess potential commingling of plumes, and from which a more focused sampling plan can be designed for subsequent monitoring.

8. Please provide details about the procedure and equipment for the collection of filtered and unfiltered metal samples.
9. All geologic reports and workplans should be signed by a California Registered Geologist or Professional Civil Engineer.

The GSU also reviewed comments prepared by the Los Angeles Regional Water Quality Control Board (see attachment). The GSU endorses the Water Board's memo and requires a response for all listed comments, except where the issue is already covered by the GSU's comments above. The Workplan should address the following bullet items in the Water Board memo: 3, 4, 5, 6, 10, 11, 12, and 14.

CONCLUSION

The GSU finds the subject Workplan inadequate for approval. Boeing/Lockheed Martin should address all the abovelisted comments and revise the Workplan accordingly.

If you have any questions or comments, please do not hesitate to call me at 562-590-5538.

cc: Karen T. Baker
CRWQCB-LA

State of California

Environmental Protection Agency

Memorandum

To : Ms. Karen Baker, Unit Chief
Southern California Permitting Branch
Department of Toxic Substance Control
245 West Broadway, Suite 425
Long Beach, California 90808

Date: January 12, 1998

File : 100.315

From : CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—LOS ANGELES REGION
101 Centre Plaza Drive, Monterey Park, CA 91754-2156
Telephone: (213) 266-7500

Subject :

PHASE I. GROUNDWATER CHARACTERIZATION WORKPLAN - BOEING REALTY CORPORATION C-6 FACILITY, PARCEL A

We have received and reviewed the Phase I groundwater Characterization Workplan for the Boeing Realty Corporation C-6 Facility, Parcel A, dated October 17, 1997. Our comments, a draft of which was forwarded to you, for discussion, on November 4, 1997, are as follows:

1. Please note, we plan to charge our oversight costs for this review and subsequent field work to the BRC PCA number currently in use. We will segregate charges made to ILM and BRC.
2. Workplans and reports submitted for this Board's approval must be signed by a California Registered Geologist, Engineer, or Certified Engineering Geologist. Please include a signature page for the document.
3. Page 1-1 states that this investigation will provide information on the vertical extent and concentration of the chemicals of concern (COC). This workplan addresses the lateral extent of COCs in the shallow Bellflower aquitard only. The COC at this site have the potential to impact aquifers below the Bellflower aquitard. The workplan should be modified to address the deeper aquifers or, at a minimum, defer investigation of the deeper units to a subsequent phase.

Section 1.3 notes that the Bellflower aquitard extends to 100 feet bgs and the Gage aquifer is encountered at 150 feet bgs. Please address the missing section.

5. Bullet 4 on page 3-1 states that an evaluation of the "...potential for the downward migration of impacted groundwater from the first encountered groundwater to the underlying aquifers..." was conducted in 1996. Please provide us with the results of the evaluation.

6. Add hexavalent chromium to the COCs listed in paragraph 1, on page 3-4.

Ms. Karen Baker, Unit Chief
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7. There is no correlation between the vectors shown in Exhibit-7 and the narrative on page 3-4. Please modify either Exhibit-7 or the text.
8. The location of sampling point BP-03, located 1,050 feet downgradient from DAC-P1, should be reevaluated. Propose a location that will provide data pertinent to both the lateral extent of COCs, and co-mingling of groundwater plumes, if any. *Same as DSC# 2*
9. Please state the purpose of the dual screen intervals proposed on page 3-6. Clarify if the intent is to separate the Bellflower aquitard into shallow and deep zones. If so, identify whether packers will be used to separate the screened intervals. *Same as DSC# 4*
10. The proposed monitoring wells will penetrate the entire thickness of the Bellflower aquitard, according to the unit thicknesses presented on page 1-5. Identify what precautions, if any, will be in place to prevent screened intervals from creating hydraulic connections, and resulting cross-contamination, between the Bellflower aquitard and underlying units. *depth of well field set protocol to be stated ranges of depth in report*
11. Paragraph 2 on page 1-6 should state that a groundwater flow on the BRC property appears to be controlled, or influenced by a persistent trough or depression along the eastern boundary. *cuto previous reports summary*
12. *Define SOP* Section 4.2 should include a sequence for purging and sampling the proposed monitoring wells.
13. *SSC # 7 BRL-5 COCs* Include all COCs in the initial phase of this investigation. The list of COCs may be revised during subsequent phases as appropriate.
14. Briefly discuss the proposed contents of the monitoring and sampling reports identified on page 5-1. The contents should include isoconcentration maps for each COC, note trends identified, discuss significant changes noted, and provide recommendations for future work, if necessary. *Standard report protocol*

Should you have any questions regarding the above comments, please contact Hugh Marley at (213) 266-7669.

J.E. Ross
J.E. ROSS, Unit Chief
Site Cleanup Unit